

Name: _____

Test Date: _____

ENERGY STUDY GUIDE

1. All energy comes directly or indirectly from the _____. (EXCEPT: _____)
2. Identify the basic steps of **electricity generation**:

Nonrenewable Energy

3. Define **non-renewable energy**:
4. Identify TWO advantages and TWO disadvantages of using non-renewable energy sources:
 - a. Advantages:
 - b. Disadvantages:
5. Identify the top THREE countries with **oil reserves**: 1. _____ 2. _____
3. _____ **** (Indicate locations in BLUE on the map)****
Identify the number years that oil reserves will last at our current rate of use: _____
6. Identify how petroleum is **refined**:

Identify how petroleum is **extracted** in the ocean:

Identify how petroleum is extracted on land and identify TWO environmental problems:

Identify the use and extraction of **non-conventional oil**:

7. Identify how **natural gas** is extracted:

Describe the process of hydraulic fracturing:

8. Identify TWO issues associated with the fracking of natural gas:

9. Identify TWO effects of **oil production**:

10. Define: **cogeneration**

11. Describe **coal fired power**:

TWO countries that consume the majority of coal: 1. _____ 2. _____

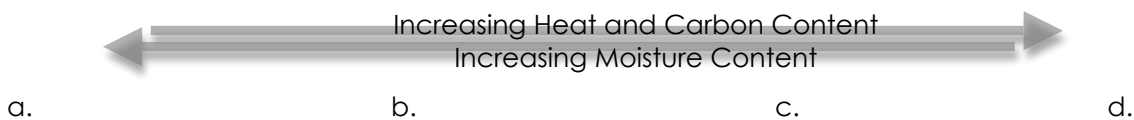
The major end use of coal is _____. The efficiency of a coal fired power plant is ~ _____

12. Identify the top THREE countries with coal reserves: 1. _____ 2. _____

3. _____ **** (Indicate locations in RED on the map on the back) ****

Identify the number of years that coal reserves will last at our current rate of use. _____

13. Identify and describe the FOUR types of **coal**:



14. Identify characteristics of the THREE types of **coal surface mining**:

a. **Contour**

b. **Area (strip) mining**

c. **Mountain top removal**

15. Describe the process of surface **coal mining** from removal to reclamation:

16. Identify TWO types of **underground coal mining**:

a.

b.

17. Identify TWO hazards of underground coal mining:

18. Describe the process of **reclamation**:

19. Identify FIVE effects of **coal production**:

20. Identify THREE environmental effects and their causes from the **steps in obtaining natural capital**:

21. Identify FOUR **emissions** of fossil fuel use:

a.

b.

c.

d.

22. Identify THREE ways to **reduce fossil fuel gas** emissions:

a.

b.

c.

23. Define **nuclear power generation**:

Identify the TWO elements used in nuclear power generation: _____ & _____

24. Label a drawing of a **nuclear reactor**.
25. Describe the issues surrounding **thermal pollution**:
26. Define **ionizing radiation**:
27. Identify TWO advantages and TWO disadvantages of using **nuclear power**:
- a. Advantages:

 - b. Disadvantages:
28. Describe the TWO types of **nuclear waste**:
29. Describe **Yucca Mountain** and identify TWO characteristics that make it ideal for storage:
- Identify TWO other disposal options:
30. Identify THREE of the expectations of **power plants**:

Renewable Energy

31. Define **renewable energy**:
32. Identify TWO advantages and TWO disadvantages of using **renewable energy** sources:
- a. Advantages:

 - b. Disadvantages:

33. Identify the SIX types of **renewable energy**:

- a.
- b.
- c.
- d.
- e.
- f.

34. Use the map to locate THREE countries with the largest **wind power production**.

35. Describe the process of **wind power generation**:

36. Identify TWO advantages and TWO disadvantages of **wind energy**:

a. Advantages:

b. Disadvantages:

37. Use the map to identify the location and power generation of the TWO **largest hydroelectric dams**.

38. Describe the process of **hydroelectric power generation**:

39. Identify TWO advantages and TWO disadvantages of **hydroelectric energy**:

a. Advantages:

b. Disadvantages:

40. Identify the characteristics of the **indirect** solar power systems:

a. **Central receiver system**

b. **Distributed receiver system**

c. **Parabolic dishes**

41. Describe **photovoltaic systems**:

42. Describe the TWO types of **passive solar systems**:

43. Identify TWO advantages and TWO disadvantages of **solar energy**:

a. Advantages:

b. Disadvantages:

44. Describe the process of **geothermal power generation**:

45. Identify TWO advantages and TWO disadvantages of **geothermal energy**:

a. Advantages:

b. Disadvantages:

46. Identify the following types of renewable energy from **watersheds**:

a. **Wave Power**

b. **Ocean Thermal Power / Solar Ponds**

47. Identify the sources of **biomass**:

Describe the process of methane digestion to produce **biogas**:

48. Identify TWO advantages and TWO disadvantages of **biomass energy**:

a. Advantages:

b. Disadvantages:

49. Identify TWO ways to **conserve energy**:

a.

b.

50. Identify THREE **energy efficient appliances**:

a.

b.

c.

51. Identify the addition to **hybrid vehicles**:

52. Describe **hydrogen fuel cells**:

53. Describe **Corporate Average Fuel Economy (CAFE)**:

Identify TWO other improvements that have been made to improve **energy efficiency in transport**:

